

REMARKS

Applicants concurrently file herewith a Petition for Extension of Time for a one-month extension of time, and corresponding extension of time fee.

Claims 1, 3-8, 10-15, and 17-25 are all of the claims presently pending in the application. Claims 1, 4, 8, 11, and 15 have merely been editorially amended.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1, 3-8, 10-15, and 17 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Claims 1, 3-7, and 21-25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa (U.S. Patent No. 5,306,322). Claims 8, 10-15 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa in view of Antos (U.S. Patent No. 6,289,698).

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention of exemplary claim 1, provides a method for sintering a porous glass-material having a core inside the porous-glass material, wherein the range of the outer diameter(d) of the porous-glass material is within a range of $0.5xD < d < 0.9xD$

(e.g., see Application at page 9, line 24 through page 10, line 31). This feature is important for ensuring uniform vitrification in the radial direction of the porous-glass material (see Application at page 9, lines 30-33).

II. THE INDEFINITENESS REJECTION

The Examiner has rejected claims 1, 3-8, 10-15, and 17 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. Specifically, the Examiner alleges that the phrase “based on” renders the claims indefinite.

While Applicants maintain that the claims are clearly definite for purposes of 35 U.S.C. §112, second paragraph, merely in an effort to speed prosecution, Applicants have amended the claims to remove the allegedly indefinite language.

Accordingly, the Examiner is respectfully requested to reconsider and withdraw this rejection.

III. THE PRIOR ART REJECTIONS

The Examiner alleges that the claimed invention of claims 1, 3-7, and 21-25 would have been obvious in view of Ishikawa. Furthermore, the Examiner alleges that the claimed invention of claims 8, 10-15 and 17 would have been obvious in view of the alleged combination of Ishikawa in view of Antos. Applicants submit, however, that there are features of the claimed invention that are not taught nor suggested by any the cited references (taken alone or in combination).

That is, neither Ishikawa nor Antos, nor any combination thereof, teaches or suggests that “*said predetermined range of said outer diameter (d) of said porous-glass*

material is within $0.5xD < d < 0.9xD$ " as recited in claim 1 and similarly recited in claims 8 and 15.

The Examiner does not even allege that Ishikawa nor Antos teaches or suggests this feature of the claimed invention. Indeed, the Examiner concedes that Ishikawa teaches a ratio of $d/D = 0.93$, which is outside of the claimed range. The Examiner, however, alleges that the claimed range would have been obvious in view of Ishikawa.

Applicants have previously submitted two declarations under 37 C.F.R. § 1.132 to establish the importance of the range recited in the claimed invention and thus rebut the Examiner's alleged *prima facie* case of obviousness (Applicants maintain that since the ratio taught in Ishikawa is outside of the claimed range, the Examiner has not established a *prima facie* case of obviousness).

In order to clearly verify the evidence that unexpected and important results are obtained by using a ratio (d/D) of $0.5 < d/D < 0.9$, Applicants submitted two graphs (Graph 1 and Graph 2) regarding test results submitted in Declarations under 37 C.F.R. § 1.132. Graph 1 is a line graph with ratio (d/D) on the horizontal axis and eccentricity error on the vertical axis, while Graph 2 is a bar graph with ratio (d/D) on the horizontal axis and number of test pieces of which a surface was damaged on the vertical axis (Graph 1 graphically illustrates the data included in Declaration under 37 C.F.R. § 1.132 submitted on December 7, 2006; Graph 2 graphically illustrates the data included in the Declaration under 37 C.F.R. § 1.132 submitted on July 19, 2006).

As clearly illustrated in Graph 1, in the case that d/D exceeds 0.5, the eccentricity error is significantly decreased. Accordingly, Applicants submit that the claimed range ($0.5 < d/D$) obtains unexpected and important results.

Furthermore, as shown in Graph 2, in the case that d/D exceeds 0.9, the number of test pieces (glass base material) of which a surface is damaged is increased. Accordingly, Applicants submit that the claimed range ($d/D < 0.9$) obtains unexpected and important results.

The Examiner, in the Response to Arguments section of the Office Action dated March 22, 2007, alleged that Applicants have not provided any evidence to support the above arguments that the range recited in the claimed invention is significant and unexpected. The Examiner, however, is clearly incorrect.

That is, the M.P.E.P. clearly sets forth: "Evidence of unexpected properties may be in the form of a direct or indirect comparison of the claimed invention with the closest prior art which is commensurate with the claims." (See M.P.E.P. § 716.02 (b, e)).

In the two Declarations under 37 C.F.R. § 1.132, Applicants provide a comparison of the claimed invention to the closest prior art, Ishikawa.

Indeed, test subjects No. 1 and No. 2 are within the claimed range while No. 3 ($d/D = 0.93$) is the ratio of Ishikawa (e.g., see Graph 2). Accordingly, Applicants have provided a comparison of the claimed invention and the closest prior art, as set forth in M.P.E.P. § 716.02 (b, e)).

During a personal interview with the Examiner, conducted on July 11, 2007 and summarized below, the Examiner indicated that he was not aware of and did not consider M.P.E.P. § 716.02 (b, e)) when reviewing the Declarations.

Applicants respectfully request the Examiner to consider M.P.E.P. § 716.02 when reviewing this Amendment and the Declarations as M.P.E.P. § 716.02 controls the present issue.

Applicants submit that since they have clearly provided evidence in accordance with M.P.E.P. § 716.02 (b, e), Applicants have clearly met their burden in rebutting the Examiner's allegations regarding obviousness.

Moreover, Applicants submit that Ishikawa discloses a synthetic silica glass manufacturing method. A feature of the method is to manufacture a synthetic silica glass in a furnace under a heat treatment of an atmosphere including an inert gas and silicon tetrachloride (SiCl_4) gas. Thus, the synthetic silica glass containing neither moisture nor impurities can be manufactured. Specifically, Ishikawa fails to teach or suggest a ratio of (d/D) and (d/L) , together with an eccentricity error of the core as recited in the claimed invention and as evidenced in the Declarations submitted under 37 C.F.R. 1.132.

In the Response to Arguments section of the Office Action dated March 22, 2007, the Examiner erroneously alleges that above feature of the claimed invention is not recited in the claims. The Examiner, however, is requested to consider all of the pending claims as the above feature is clearly recited in the claims (e.g., see dependent claim 6).

Accordingly, even assuming that Ishikawa may disclose a synthetic silica glass manufacturing method that is somewhat similar to a method for sintering a porous glass material of the claimed invention, Applicants submit that the claimed ranges of the claimed invention would not have been obvious in view of Ishikawa (taken alone or in combination with Antos).

Therefore, the Examiner is respectfully requested to reconsider and withdraw this rejection.

IV. STATEMENT OF SUBSTANCE OF INTERVIEW

As a preliminary matter, Applicants' representative would like to thank the Examiner for courtesies extended in the personal interview conducted on July 11, 2007.

An Examiner's Interview Summary Record (PTOL-413) was provided by the Examiner at the interview.

Applicants submit this Statement to comply with the requirements of M.P.E.P. § 713.04.

In the interview, the following was discussed:

A. Identification of claims discussed:

Claims 1.

B. Identification of prior art discussed:

None.

C. Identification of principal proposed amendments:

None.

D. Brief Identification of principal arguments:

Applicants' representative argued that the Declarations filed under 37 C.F.R. § 1.132 clearly provided evidence that the claimed range of $0.5xD \leq d \leq 0.9xD$ was

significant and unexpected. The arguments presented during the interview are repeated above in section III.

E. Results of the Interview:

The Examiner maintained that the Declarations did not provide evidence of unexpected results. The Examiner, however, did not provide any basis for this conclusion.

V. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicants submit that claims 1, 3-8, 10-15 and 17-25, all of the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

Serial No. 09/987,404
Docket No. SH-0027US

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The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

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Respectfully Submitted,



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